

NEC EXPRESS5800/R120b-2 Configuration Guide



Introduction

This document contains product and configuration information that will enable you to configure your system. The guide will ensure fast and proper configuration of your NEC EXPRESS5800 server.

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Technical Specification

Key Features

- High performance with the latest Intel® Xeon® processor 5600 series
- Up to 192 GB of high speed DDR3-1333 memory
- High energy efficiency with power capping feature and 80 PLUS® Gold power supply
- Full manageability by integrated EXPRESSSCOPE Engine 2

Specification

2.5-inch Drive Model (1 / 2)

Model		R120b-2			
Part Number		N8100-1707F	N8100-1708F	N8100-1759F	N8100-1709F
Processor	Type	Intel® Xeon® processor E5606	Intel® Xeon® processor E5620	Intel® Xeon® processor X5687	Intel® Xeon® processor E5645
	Clock speed	2.13 GHz	2.40 GHz	3.60 GHz	2.40 GHz
	Number of Processors	1 or 2			
	Cache	8 MB	12 MB	12 MB	12 MB
	Cores and Threads	4C-4T	4C-8T	4C-8T	6C-12T
Chipset		Intel® 5520 Chipset			
Memory	Type	DDR3-1333 and DDR3-1066 ECC Registered Low Power DIMM			
	Standard Capacity	0 GB			
	Maximum Capacity	192 GB (12 x 16 GB)			
	Memory protection	ECC, x4 SDDC, Memory Mirroring, Memory Lockstep, Memory Sparring ¹			
Internal Storage	Standard Capacity	0 GB			
	Maximum Capacity	SAS : 10.8 TB (12 x 900 GB) SATA : 12 TB (12 x 1 TB) SSD : 1.2 TB (12 x 100 GB)			
	Disk Controller	SATA : 3Gb/s (Integrated) SAS: 6Gb/s (Optional)			
	RAID	SATA : RAID 0/1/5/6/10/50 (Optional) SAS : RAID 0/1/5/6/10/50 (Optional)			
	Hot Plug	Supported			
	Optical Disk Drive	Optional			
	Floppy Disk Drive	Optional			
	Optical Drive Bays [free]	1 [1]			
	Floppy Drive Bays [free]	1 [1]			
	3.5-inch Media Bays [free]	1 [1]			
	Disk Drive Bays [free]	12 [12] ²			
Expansion Slots [free]	Standard	Total: 6 slots available 1[1] x PCIe 2.0 x8 (x16 connector) 2[2] x PCIe 2.0 x8 (x8 connector) 1[1] x PCIe 2.0 x4 (x8 connector) 1[1] x PCIe x4 (x8 connector) 1[1] x PCIe 2.0 x4 (x8 connector) dedicated RAID slot			

Model		R120b-2			
Expansion Slots [free] (Cont.)	Optional Riser Card (N8116-21)	Total: 6 slots available 1[1] x PCIe 2.0 x8 (x16 connector) 1[1] x PCIe 2.0 x8 (x8 connector) 1[1] x PCIe 2.0 x4 (x8 connector) 1[1] x PCIe x4 (x8 connector) 1[1] x 64-bit/ 133 MHz PCI-X 1[1] x PCIe 2.0 x4 (x8 connector) dedicated RAID slot			
	Optional Riser Card (N8116-22)	Total: 6 slots available 1[1] x PCIe 2.0 x8 (x8 connector) 1[1] x PCIe 2.0 x4 (x8 connector) 1[1] x PCIe x4 (x8 connector) 2[2] x 64-bit / 33 MHz 5V PCI 1[1] x PCIe 2.0 x4 (x8 connector) dedicated RAID slot			
Video Controller (VRAM)		Integrated in Server Management Controller (32MB)			
Interfaces		1 x Keyboard (6-pin mini DIN, 1 x rear) 1 x Mouse (6-pin mini DIN, 1 x rear) 2 x VGA (15-pin mini D-sub, 1 x front, 1 x rear) 1 x Serial (9-pin mini D-sub, RS232-C, Serial B, 1 x rear) 8 x USB2.0 (2 x front, 2 x rear, 4 x internal) 2 x 1000BASE-T LAN connector (1000BASE-T / 100BASE-TX / 10BASE-T, RJ-45, 2 x rear) 1 x Management LAN connector (100BASE-TX / 10BASE-T, RJ-45, 1 x rear)			
Server Management		EXPRESSSCOPE Engine 2			
Redundant Fan		Optional, hot plug			
Redundant Power Supply		Optional, hot plug			
Power Supply		1-2 x 750 Watt 80 PLUS® Gold certified hot plug PSU 100-240 VAC ± 10% 50 / 60 Hz ± 3 Hz			
Power Consumption	(Max. Config, Idling)	270 VA / 268 Watt	276 VA / 274 Watt	297 VA / 295 Watt	276 VA / 274 Watt
	(Max. Config, Operating)	580 VA / 570 Watt	600 VA / 590 Watt	750 VA / 740 Watt	610 VA / 600 Watt
Acoustical Noise (Sound Pressure Level) ³	Max. Config, Idling	47.3dB	47.3dB	47.9dB	47.3dB
	Max. Config, Operating	54.1dB	54.1dB	55.8dB	54.1dB
Dimensions (W x D x H)		445.2 x 721.2 x 86.7 mm / 17.5 x 28.4 x 3.4 in (2U)			
Weight (Minimum / Maximum)		21 kg / 31 kg, 46.30 lbs. / 68.34 lbs.			
Temperature, Relative Humidity (non-condensing)		Operating: 10° to 35° C / 50° to 95° F, 20 to 80% Non-Operating: -10° to 55° C / 14° to 131° F, 20 to 80%			
Regulatory and Safety		FCC, CE, BSMI, CCC, UL, CB, RoHS, WEEE			
Operating Systems		Microsoft® Windows Server® 2003, Standard Edition (SP1 or later) Microsoft® Windows Server® 2003, Enterprise Edition (SP1 or later) Microsoft® Windows Server® 2003 R2, Standard Edition Microsoft® Windows Server® 2003 R2, Enterprise Edition Microsoft® Windows Server® 2003 R2, Standard x64 Edition Microsoft® Windows Server® 2003 R2, Enterprise x64 Edition Microsoft® Windows Server® 2008 Standard Microsoft® Windows Server® 2008 Enterprise Microsoft® Windows Server® 2008 Standard (x64) Microsoft® Windows Server® 2008 Enterprise (x64) Microsoft® Windows Server® 2008 R2 Standard Microsoft® Windows Server® 2008 R2 Enterprise Red Hat Enterprise Linux ES4.8 or later (x86) ⁴ Red Hat Enterprise Linux ES4.8 or later (EM64T) ⁴ Red Hat Enterprise Linux AS4.8 or later (x86) ⁴			

Model	R120b-2
Operating Systems (Cont.)	Red Hat Enterprise Linux AS4.8 or later (EM64T) ⁴ Red Hat Enterprise Linux 5.4 or later (x86) ⁴ Red Hat Enterprise Linux 5.4 or later (EM64T) ⁴ Red Hat Enterprise Linux Advanced Platform5.4 or later (x86) ⁴ Red Hat Enterprise Linux Advanced Platform5.4 or later (EM64T) ⁴ Red Hat Enterprise Linux 6.0 or later (x86) ⁴ Red Hat Enterprise Linux 6.0 or later (x86_64) ⁴ SUSE Linux Enterprise Server 10 ⁴ SUSE Linux Enterprise Server 10 (EM64T) ⁴ SUSE Linux Enterprise Server 11 SP1 or later (EM64T) ⁴ VMware ESXi 4.1

- ¹ Online Spare is supported on Xeon 5600 series.
- ² An optional HDD Cage is required to install more than 8 hard drives.
- ³ Noise emission was measured in accordance with ISO 7779. The actual value may vary by the operating environment.
- ⁴ For Linux support, contact our sales representative or go to the NEC website at: <http://www.nec.com/global/prod/express/linux/index.html>

2.5-inch Drive Model (2 / 2)

Model	R120b-2			
Part Number	N8100-1711F	N8100-1712F	N8100-1713F	
Processor	Type	Intel® Xeon® processor X5650	Intel® Xeon® processor X5675	Intel® Xeon® processor X5690
	Clock speed	2.66 GHz	3.06 GHz	3.46 GHz
	Number of Processors	1 or 2		
	Cache	12 MB		
	Cores and Threads	6C-12T		
Chipset	Intel® 5520 Chipset			
Memory	Type	DDR3-1333 and DDR3-1066 ECC Registered Low Power DIMM		
	Standard Capacity	0 GB		
	Maximum Capacity	192 GB (12 x 16 GB)		
	Memory protection	ECC, x4 SDDC, Memory Mirroring, Memory Lockstep, Memory Sparing		
Internal Storage	Standard Capacity	0 GB		
	Maximum Capacity	SAS : 10.8 TB (12 x 900 GB) SATA : 12 TB (12 x 1 TB) SSD : 1.2 TB (12 x 100 GB)		
	Disk Controller	SATA : 3Gb/s (Integrated) SAS: 6Gb/s (Optional)		
	RAID	SATA : RAID 0/1/5/6/10/50 (Optional) SAS : RAID 0/1/5/6/10/50 (Optional)		
	Hot Plug	Supported		
	Optical Disk Drive	Optional		
	Floppy Disk Drive	Optional		
	Optical Drive Bays [free]	1 [1]		
	Floppy Drive Bays [free]	1 [1]		
	3.5-inch Media Bays [free]	1 [1]		

Model		R120b-2		
Internal Storage	3.5-inch Media Bays [free]	1 [1]		
(Cont.)	Disk Drive Bays [free]	12 [12] ¹		
Expansion Slots [free]	Standard	Total: 6 slots available 1[1] x PCIe 2.0 x8 (x16 connector) 2[2] x PCIe 2.0 x8 (x8 connector) 1[1] x PCIe 2.0 x4 (x8 connector) 1[1] x PCIe x4 (x8 connector) 1[1] x PCIe 2.0 x4 (x8 connector) dedicated RAID slot		
	Optional Riser Card (N8116-21)	Total: 6 slots available 1[1] x PCIe 2.0 x8 (x16 connector) 1[1] x PCIe 2.0 x8 (x8 connector) 1[1] x PCIe 2.0 x4 (x8 connector) 1[1] x PCIe x4 (x8 connector) 1[1] x 64bit / 133MHz PCI-X 1[1] x PCIe 2.0 x4 (x8 connector) dedicated RAID slot		
	Optional Riser Card (N8116-22)	Total: 6 slots available 1[1] x PCIe 2.0 x8 (x8 connector) 1[1] x PCIe 2.0 x4 (x8 connector) 1[1] x PCIe x4 (x8 connector) 2[2] x 64-bit / 33 MHz 5V PCI 1[1] x PCIe 2.0 x4 (x8 connector) dedicated RAID slot		
Video Controller (VRAM)		Integrated in Server Management Controller (32MB)		
Interfaces		1 x Keyboard (6-pin mini DIN, 1 x rear) 1 x Mouse (6-pin mini DIN, 1 x rear) 2 x VGA (15-pin mini D-sub, 1 x front, 1 x rear) 1 x Serial (9-pin mini D-sub, RS232-C, Serial B, 1 x rear) 8 x USB2.0 (2 x front, 2 x rear, 4 x internal) 2 x 1000BASE-T LAN connector (1000BASE-T / 100BASE-TX / 10BASE-T, RJ-45, 2 x rear) 1 x Management LAN connector (100BASE-TX / 10BASE-T, RJ-45, 1 x rear)		
Server Management		EXPRESSSCOPE Engine 2		
Redundant Fan		Optional, hot plug		
Redundant Power Supply		Optional, hot plug		
Power Supply		1-2 x 750 Watt 80 PLUS® Gold certified hot plug PSU 100-240 VAC ± 10% 50 / 60 Hz ± 3 Hz		
Power Consumption	(Max. Config, Idling)	286 VA / 284 Watt	286 VA / 284 Watt	297 VA / 295 Watt
	(Max. Config, Operating)	670 VA / 660 Watt	670 VA / 660 Watt	810 VA / 800 Watt
Acoustical Noise (Sound Pressure Level) ²	Max. Config, Idling	47.9dB	47.9dB	47.9dB
	Max. Config, Operating	54.2dB	54.2dB	54.2dB
Dimensions (W x D x H)		445.2 x 721.2 x 86.7 mm / 17.5 x 28.4 x 3.4 in (2U)		
Weight (Minimum / Maximum)		21 kg / 31 kg, 46.30 lbs. / 68.34 lbs.		
Temperature, Relative Humidity (non-condensing)		Operating: 10° to 35° C / 50° to 95° F, 20 to 80% Non-Operating: -10° to 55° C / 14° to 131° F, 20 to 80%		
Regulatory and Safety		FCC, CE, BSMI, CCC, UL, CB, RoHS, WEEE		
Operating Systems		Microsoft® Windows Server® 2003, Standard Edition (SP1 or later) Microsoft® Windows Server® 2003, Enterprise Edition (SP1 or later) Microsoft® Windows Server® 2003 R2, Standard Edition Microsoft® Windows Server® 2003 R2, Enterprise Edition Microsoft® Windows Server® 2003 R2, Standard x64 Edition		
Model		R120b-2		

Operating Systems (Cont.)	Microsoft® Windows Server 2003 R2, Enterprise x64 Edition Microsoft® Windows Server® 2008 Standard Microsoft® Windows Server® 2008 Enterprise Microsoft® Windows Server® 2008 Standard (x64) Microsoft® Windows Server® 2008 Enterprise (x64) Microsoft® Windows Server® 2008 R2 Standard Microsoft® Windows Server® 2008 R2 Enterprise Red Hat Enterprise Linux ES4.8 or later (x86) ³ Red Hat Enterprise Linux ES4.8 or later (EM64T) ³ Red Hat Enterprise Linux AS4.8 or later (x86) ³ Red Hat Enterprise Linux AS4.8 or later (EM64T) ³ Red Hat Enterprise Linux 5.4 or later (x86) ³ Red Hat Enterprise Linux 5.4 or later (EM64T) ³ Red Hat Enterprise Linux Advanced Platform5.4 or later (x86) ³ Red Hat Enterprise Linux Advanced Platform5.4 or later (EM64T) ³ Red Hat Enterprise Linux 6.0 or later (x86) ³ Red Hat Enterprise Linux 6.0 or later (x86_64) ³ SUSE Linux Enterprise Server 10 ³ SUSE Linux Enterprise Server 10 (EM64T) ³ SUSE Linux Enterprise Server 11 SP1 or later (EM64T) ³ VMware ESXi 4.1
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¹ An optional HDD Cage is required to install more than 8 hard drives.
² Noise emission was measured in accordance with ISO 7779. The actual value may vary by the operating environment.
³ For Linux support, contact our sales representative or go to the NEC website at: <http://www.nec.com/global/prod/express/linux/index.html>

3.5-inch Drive Model

Model		R120b-2		
Part Number		N8100-1714F	N8100-1715F	N8100-1716F
Processor	Type	Intel® Xeon® processor E5606	Intel® Xeon® processor E5620	Intel® Xeon® processor X5650
	Clock speed	2.13 GHz	2.40 GHz	2.66 GHz
	Number of Processors	1 or 2		
	Cache	8 MB	12 MB	12 MB
	Cores and Threads	4C-4T	4C-8T	6C-12T
Chipset		Intel® 5520 Chipset		
Memory	Type	DDR3-1333 and DDR3-1066 ECC Registered Low Power DIMM		
	Standard Capacity	0 MB		
	Maximum Capacity	192 MB (12 x 16 GB)		
	Memory protection	ECC, x4 SDDC, Memory Mirroring, Memory Lockstep, Memory Sparing		
Internal Storage	Standard Capacity	0 GB		
	Maximum Capacity	SATA : 18 TB (6 x 3 TB)		
	Disk Controller	SATA : 3 Gb/s (Integrated)		
	RAID	SATA : RAID 0/1/5/6/10/50 (Optional)		
	Hot Plug	Supported		
	Optical Disk Drive	Optional		
	Floppy Drive	Optional		
Model		R120b-2		
Internal Storage	3.5-inch Media Bays	1 [1]		

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(Cont.)	[free]			
	Optical Drive Bays [free]	1 [1]		
	Floppy Drive Bays [free]	1 [1]		
	Disk Drive Bays [free]	6 [6]		
Expansion Slots [free]	Standard	Total: 6 slots available 1[1] x PCIe 2.0 x8 (x16 connector) 2[2] x PCIe 2.0 x8 (x8 connector) 1[1] x PCIe 2.0 x4 (x8 connector) 1[1] x PCIe x4 (x8 connector) 1[1] x PCIe 2.0 x4 (x8 connector) dedicated RAID slot		
	Optional Riser Card (N8116-21)	Total: 6 slots available 1[1] x PCIe 2.0 x8 (x16 connector) 1[1] x PCIe 2.0 x8 (x8 connector) 1[1] x PCIe 2.0 x4 (x8 connector) 1[1] x PCIe x4 (x8 connector) 1[1] x 64-bit / 133MHz PCI-X 1[1] x PCIe 2.0 x4 (x8 connector) dedicated RAID slot		
	Optional Riser Card (N8116-22)	Total: 6 slots available 1[1] x PCIe 2.0 x8 (x8 connector) 1[1] x PCIe 2.0 x4 (x8 connector) 1[1] x PCIe x4 (x8 connector) 2[2] x 64-bit/ 33 MHz 5V PCI 1[1] x PCIe 2.0 x4 (x8 connector) dedicated RAID slot		
Video Controller (VRAM)		Integrated in Server Management Controller (32MB)		
Interfaces		1 x Keyboard (6-pin mini DIN, 1 x rear) 1 x Mouse (6-pin mini DIN, 1 x rear) 2 x VGA (15-pin mini D-sub, 1 x front, 1 x rear) 1 x Serial (9-pin mini D-sub, RS232-C, Serial B, 1 x rear) 8 x USB2.0 (2 x front, 2 x rear, 4 x internal) 2 x 1000BASE-T LAN connector (1000BASE-T / 100BASE-TX / 10BASE-T, RJ-45, 2 x rear) 1 x Management LAN connector (100BASE-TX / 10BASE-T, RJ-45, 1 x rear)		
Server Management		EXPRESSSCOPE Engine 2		
Redundant Fan		Optional, hot plug		
Redundant Power Supply		Optional, hot plug		
Power Supply		1-2 x 750 Watt 80 PLUS® Gold certified hot plug PSU 100-240 VAC ± 10% 50 / 60 Hz ± 3 Hz		
Power Consumption	(Max. Config, Idling)	277 VA / 275 Watt	264 VA / 262 Watt	272 VA / 270 Watt
	(Max. Config, Operating)	550 VA / 540 Watt	580 VA / 570 Watt	660 VA / 650 Watt
Acoustical Noise (Sound Pressure Level)¹	Max. Config, Idling	47.3 dB	47.3 dB	47.9 dB
	Max. Config, Operating	54.1 dB	54.1 dB	55.8 dB
Dimensions (W x D x H)		445.2 x 721.2 x 86.7 mm / 17.5 x 28.4 x 3.4 in (2U)		
Weight (Minimum / Maximum)		21 kg / 31 kg, 46.30 lbs. / 68.34 lbs.		
Temperature, Relative Humidity (non-condensing)		Operating: 10° to 35° C / 50° to 95° F, 20 to 80% Non-Operating: -10° to 55° C / 14° to 131° F, 20 to 80%		
Regulatory and Safety		FCC, CE, BSMI, CCC, UL, CB, RoHS, WEEE		
Model		R120b-2		

Operating Systems

Microsoft® Windows Server® 2003, Standard Edition (SP1 or later)
Microsoft® Windows Server® 2003, Enterprise Edition (SP1 or later)
Microsoft® Windows Server® 2003 R2, Standard Edition
Microsoft® Windows Server® 2003 R2, Enterprise Edition
Microsoft® Windows Server® 2003 R2, Standard x64 Edition
Microsoft® Windows Server 2003 R2, Enterprise x64 Edition
Microsoft® Windows Server® 2008 Standard
Microsoft® Windows Server® 2008 Enterprise
Microsoft® Windows Server® 2008 Standard (x64)
Microsoft® Windows Server® 2008 Enterprise (x64)
Microsoft® Windows Server® 2008 R2 Standard
Microsoft® Windows Server® 2008 R2 Enterprise
Red Hat Enterprise Linux ES4.8 or later (x86)²
Red Hat Enterprise Linux ES4.8 or later (EM64T)²
Red Hat Enterprise Linux AS4.8 or later (x86)²
Red Hat Enterprise Linux AS4.8 or later (EM64T)²
Red Hat Enterprise Linux 5.4 or later (x86)²
Red Hat Enterprise Linux 5.4 or later (EM64T)²
Red Hat Enterprise Linux Advanced Platform5.4 or later (x86)²
Red Hat Enterprise Linux Advanced Platform5.4 or later (EM64T)²
Red Hat Enterprise Linux 6.0 or later (x86)²
Red Hat Enterprise Linux 6.0 or later (x86_64)²
SUSE Linux Enterprise Server 10²
SUSE Linux Enterprise Server 10 (EM64T)²
SUSE Linux Enterprise Server 11 SP1 or later (EM64T)²
VMware ESXi 4.1

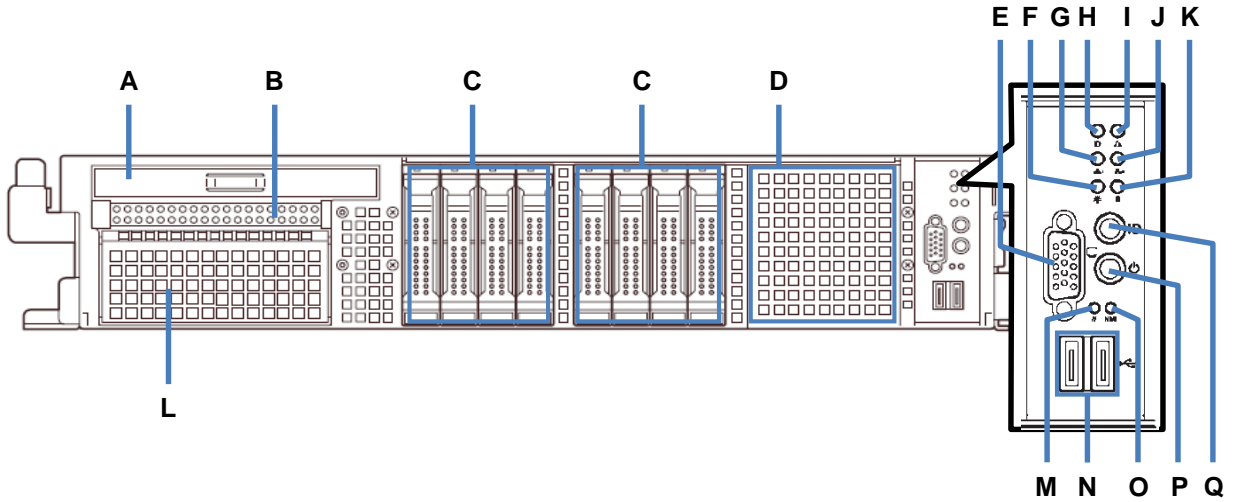
¹ Noise emission was measured in accordance with ISO 7779. The actual value may vary by the operating environment.

² For Linux support, contact our sales representative or go to the NEC website at:
<http://www.nec.com/global/prod/express/linux/index.html>

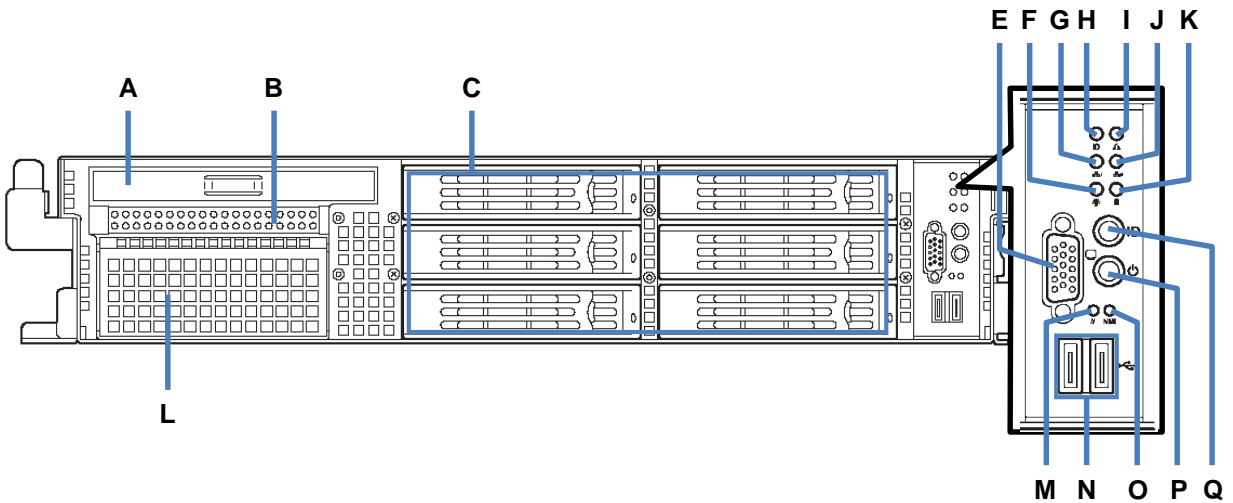
External Views

Front and Rear Views

Front View for 2.5-inch Drive Model

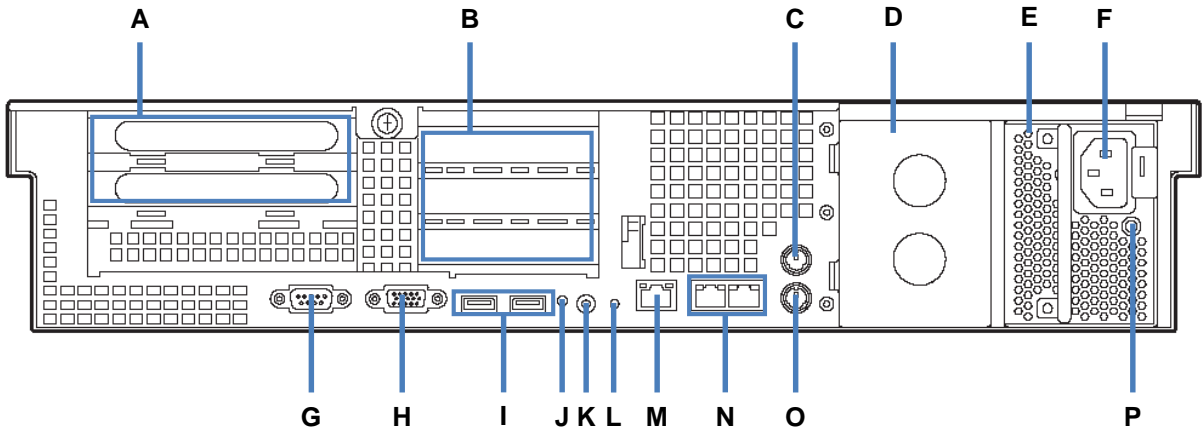


Front View for 3.5-inch Drive Model



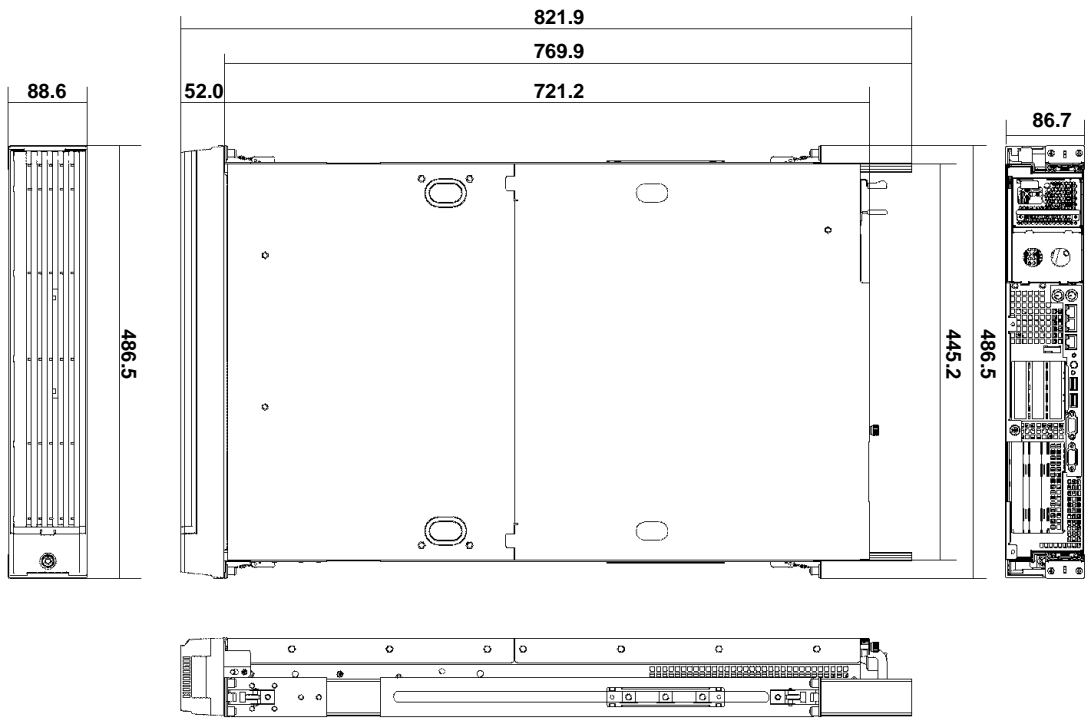
Legend	
A.	Optical Drive Bay
B.	Floppy Drive Bay
C.	Drive Bays
D.	2.5-inch Drive Cage Bay
E.	VGA Connector
F.	Power LED
G.	Data LAN 1 Activity LED
H.	UID LED
I.	System Status LED
J.	Data LAN 2 Activity LED
K.	Hard Drive Activity LED
L.	3.5-inch Media Bay
M.	System Reset Switch
N.	USB Connectors
O.	Dump (NMI) Switch
P.	Power Button
Q.	UID LED Button

Rear View



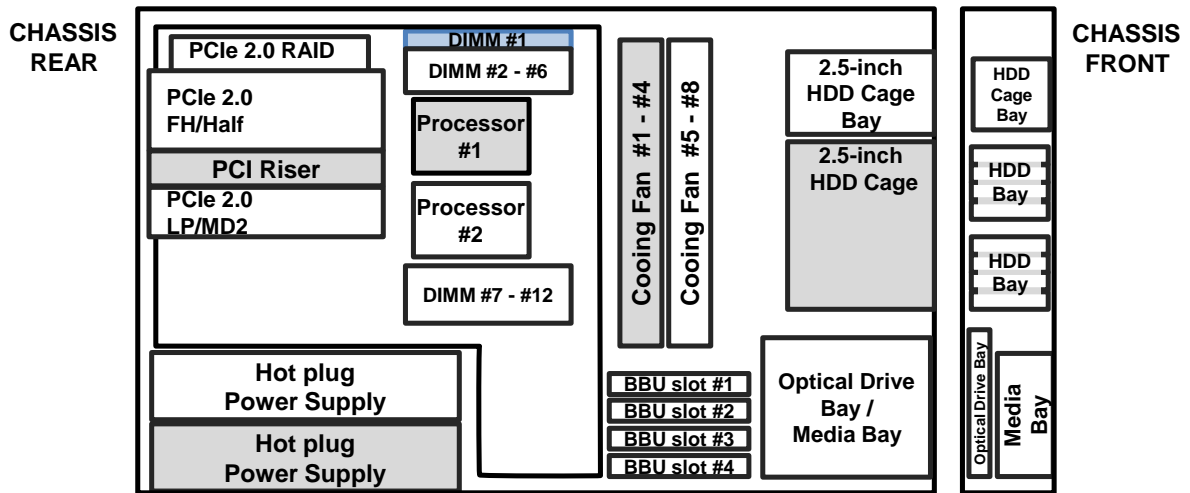
Legend	
A.	PCI Slots (Full-Height)
B.	PCI Slots (Low-Profile)
C.	Mouse Connector
D.	Additional PS Slot
E.	Power Supply
F.	AC Inlet
G.	Serial Port Connector
H.	VGA Connector
I.	USB Connectors
J.	UID Button
K.	UID LED
L.	Dump (NMI) Switch
M.	Management LAN Connector
N.	Data LAN Connectors
O.	Keyboard Connector
P.	AC Power LED

Dimensions (mm)



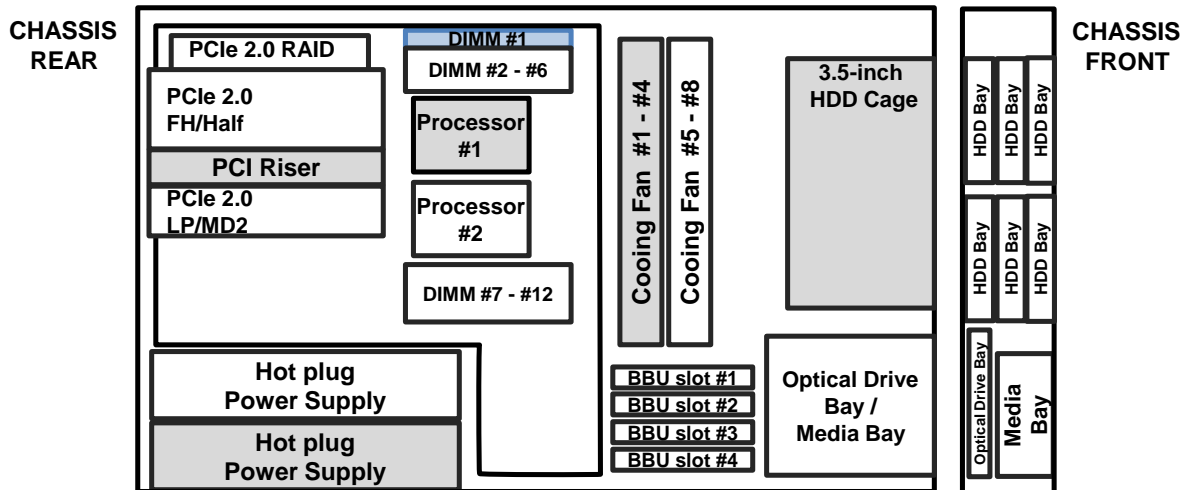
Configuration Diagram

2.5-inch Drive Model



Legend: Minimum required components Standard components

3.5-inch Drive Model



Legend: Minimum required components Standard components

Server Configuration

1 Base Models

2.5-inch Drive Model

Product Name / Description	Part Number
NEC EXPRESS5800/R120b-2 Server (2C/E5503) no RAM, no 2.5-inch HDD, no ODD, no FDD Including: 1 x Intel Xeon processor E5503, 2.5-inch HDD Cage, EXPRESSBUILDER DVD	N8100-1706F
NEC EXPRESS5800/R120b-2 Server (4C/E5606) no RAM, no 2.5-inch HDD, no ODD, no FDD Including: 1 x Intel Xeon processor E5606, 2.5-inch HDD Cage, EXPRESSBUILDER DVD	N8100-1707F
NEC EXPRESS5800/R120b-2 Server (4C/E5620) no RAM, no 2.5-inch HDD, no ODD, no FDD Including: 1 x Intel Xeon processor E5620, 2.5-inch HDD Cage, EXPRESSBUILDER DVD	N8100-1708F
NEC EXPRESS5800/R120b-2 Server (4C/X5687) no RAM, no 2.5-inch HDD, no ODD, no FDD Including: 1 x Intel Xeon processor X5687, 2.5-inch HDD Cage, EXPRESSBUILDER DVD	N8100-1759F
NEC EXPRESS5800/R120b-2 Server (6C/E5645) no RAM, no 2.5-inch HDD, no ODD, no FDD Including: 1 x Intel Xeon processor E5645, 2.5-inch HDD Cage, EXPRESSBUILDER DVD	N8100-1709F
NEC EXPRESS5800/R120b-2 Server (6C/X5650) no RAM, no 2.5-inch HDD, no ODD, no FDD Including: 1 x Intel Xeon processor X5650, 2.5-inch HDD Cage, EXPRESSBUILDER DVD	N8100-1711F
NEC EXPRESS5800/R120b-2 Server (6C/X5675) no RAM, no 2.5-inch HDD, no ODD, no FDD Including: 1 x Intel Xeon processor X5675, 2.5-inch HDD Cage, EXPRESSBUILDER DVD	N8100-1712F
NEC EXPRESS5800/R120b-2 Server (6C/X5690) no RAM, no 2.5-inch HDD, no ODD, no FDD Including: 1 x Intel Xeon processor X5690, 2.5-inch HDD Cage, EXPRESSBUILDER DVD	N8100-1713F

3.5-inch Drive Model

Product Name / Description	Part Number
NEC EXPRESS5800/R120b-2 Server (4C/E5606) no RAM, no 3.5-inch HDD, no ODD, no FDD Including: 1 x Intel Xeon processor E5606, 3.5-inch HDD Cage, EXPRESSBUILDER DVD	N8100-1714F
NEC EXPRESS5800/R120b-2 Server (4C/E5620) no RAM, no 3.5-inch HDD, no ODD, no FDD Including: 1 x Intel Xeon processor E5620, 3.5-inch HDD Cage, EXPRESSBUILDER DVD	N8100-1715F
NEC EXPRESS5800/R120b-2 Server (6C/X5650) no RAM, no 3.5-inch HDD, no ODD, no FDD Including: 1 x Intel Xeon processor X5650, 3.5-inch HDD Cage, EXPRESSBUILDER DVD	N8100-1716F

2 2nd Processor

Available sockets: 1

Product Name / Description	Part Number
CPU Kit (2C/E5503) Intel® Xeon® Processor E5503 (2 GHz / 2C-2T / 4 MB)	N8101-456F
CPU Kit (4C/E5606) Intel® Xeon® Processor E5606 (2.13 GHz / 4C-4T / 8 MB)	N8101-484F
CPU Kit (4C/E5620) Intel® Xeon® Processor E5620 (2.40 GHz / 4C-8T / 12 MB)	N8101-458F
CPU Kit (4C/ X5687) Intel® Xeon® Processor X5687 (3.60 GHz / 4C-8T / 12 MB)	N8101-510F
CPU Kit (6C/E5645) Intel® Xeon® Processor E5645 (2.40 GHz / 6C-12T / 12 MB)	N8101-485F
CPU Kit (6C/X5650) Intel® Xeon® Processor X5650 (2.66 GHz / 6C-12T / 12 MB)	N8101-486F
CPU Kit (6C/X5675) Intel® Xeon® Processor X5675 (3.06 GHz / 6C-12T / 12 MB)	N8101-487F
CPU Kit (6C/X5690) Intel® Xeon® Processor X5690 (3.46 GHz / 6C-12T / 12 MB)	N8101-488F

NOTE:

- The 2nd processor must be the same with what is used in the base model

3 Memory

3.1 Memory Configuration

Refer to the section in accordance with your memory configuration:

- Independent Channel / Memory Sparring Configuration: Refer to [3.1.1](#)
- Memory Mirroring / Memory Lockstep Configuration: Refer to [3.1.2](#)

3.1.1 Independent Channel / Memory Sparring Configuration

Available slots: 6 per processor

Product Name / Description	Part Number
Additional 2GB Memory Module (1x 2GB) 2 GB (1 x 2 GB) DDR3-1333 ECC Registered Low Power DIMM	N8102-428F
Additional 4GB Memory Module (1x 4GB) 4 GB (1 x 4 GB) DDR3-1333 ECC Registered Low Power DIMM	N8102-429F
Additional 8GB Memory Module (1x 8GB) 8 GB (1 x 8 GB) DDR3-1333 ECC Registered Low Power DIMM	N8102-374F
Additional 16GB Memory Module (1x 16GB) 16 GB (1 x 16 GB) DDR3-1066 ECC Registered Low Power DIMM	N8102-375F

NOTE:

- Minimum one memory kit per processor must be installed.
- It is recommended to install two or three identical memory kits for dual-channel or triple-channel symmetric memory configurations to increase memory transfer speed.

3.1.2 Memory Mirroring / Memory Lockstep Configuration

Available slots: 4 per processor

Product Name / Description	Part Number
Additional 4GB Memory Module (2x 2GB) 4 GB (2 x 2 GB) DDR3-1333 ECC Registered Low Power DIMM	N8102-388
Additional 8GB Memory Module (2x 4GB) 8 GB (2 x 4 GB) DDR3-1333 ECC Registered Low Power DIMM	N8102-389
Additional 16GB Memory Module (2x 8GB) 16 GB (2 x 8 GB) DDR3-1333 ECC Registered Low Power DIMM	N8102-390
Additional 32GB Memory Module (2x 16GB) 32 GB (2 x 16 GB) DDR3-1066 ECC Registered Low Power DIMM	N8102-391

NOTE:

- Minimum one memory kit per processor must be installed.

Memory Configuration Feature Comparison

See the table below for feature comparisons of memory configurations supported.

	Independent Channel	Memory Sparing	Memory Lockstep	Memory Mirroring
Performance	Best	Better	Better	Good
Data Protection	No	Multiple single bit error protection	No	Multiple single bit and multi bit error protection
Data Correction	ECC, x4 SDDC	ECC, x4 SDDC	ECC, x8 SDDC	ECC, x4 SDDC
Redundancy	No	Partly	No	Fully
Available Memory	Full physical memory	Physical memory excluding spare memory	Full physical memory	Half physical memory
Available Memory Channels	3	3	2	2
Notes	-	All DIMMs in the system must be identical.	Paired DIMMs must be identical.	Paired DIMMs must be identical.

Maximum Memory Speed

See the table below for the actual maximum memory speed on your system.

DDR3 memory speed depends on the type of DIMMs and the native memory bus speed of the memory controller. All memory buses operate at the clock frequency of the DIMM with the lowest frequency.

Processor Type	Populated DIMMs	Memory Power Setting	DIMMs per Channel	DIMM Speed
E5503	-	-	-	800 MHz
E5606	1 GB, 2 GB, 4 GB, 8 GB	-	-	1066 MHz
E5620	16GB	Normal (1.5V)	1	1066 MHz
			2	800 MHz
		Low (1.35V)	-	800 MHz
E5645 X5650 X5675 X5687 X5690	1 GB, 2 GB, 4 GB, 8 GB	Normal (1.5V)	-	1333 MHz
			1	1333 MHz
		2	1066 MHz	
	16GB	Normal (1.5V)	1	1066 MHz
			2	800 MHz
		Low (1.35V)	-	800 MHz

Maximum Available Memory

See the table below for the maximum memory size that you can actually use on your system.

The maximum available memory is less than the maximum physical memory supported by your system because some chipsets require PCI resource space of about 750MB. PCI resource requirements vary depending on the type and the number of PCI cards you are using.

Maximum Memory Size Supported by OS		Maximum Available Memory
4 GB	Microsoft Windows Server 2003, Standard Edition(SP1) Microsoft Windows Server 2003 R2, Standard Edition Microsoft Windows Server 2008 Standard	4 GB (HW-DEP enabled) App. 3.6 GB (HW-DEP disabled)
32 GB	Microsoft Windows Server 2003 R2, Standard x64 Edition Microsoft Windows Server 2008 Standard (x64) Microsoft Windows Server 2008 R2 Standard (x64)	32 GB
64 GB	Microsoft Windows Server 2003, Enterprise Edition(SP1) Microsoft Windows Server 2003 R2, Enterprise Edition Microsoft Windows Server 2008 Enterprise	64 GB
1 TB	Microsoft Windows Server 2003 R2, Enterprise x64 Edition	192 GB
2 TB	Microsoft Windows Server 2008 Enterprise (x64) Microsoft Windows Server 2008 R2 Enterprise (x64)	192 GB
16 GB	Red Hat Enterprise Linux ES4 Red Hat Enterprise Linux ES4 (EM64T) Red Hat Enterprise Linux 5 Red Hat Enterprise Linux 5 Advanced Platform Red Hat Enterprise Linux 6 SUSE Linux Enterprise Server 10 SUSE Linux Enterprise Server 11	16 GB
64 GB	Red Hat Enterprise Linux AS4	64 GB
256 GB	Red Hat Enterprise Linux AS4 (EM64T) Red Hat Enterprise Linux 5 (EM64T) Red Hat Enterprise Linux 5 Advanced Platform (EM64T)	192 GB
2 TB	Red Hat Enterprise Linux 6.0 (x86_64)	192 GB
512 GB	SUSE Linux Enterprise Server 10 (EM64T) SUSE Linux Enterprise Server 11 (EM64T)	192 GB
256 GB or 1TB¹	VMware ESXi 4.1	192 GB

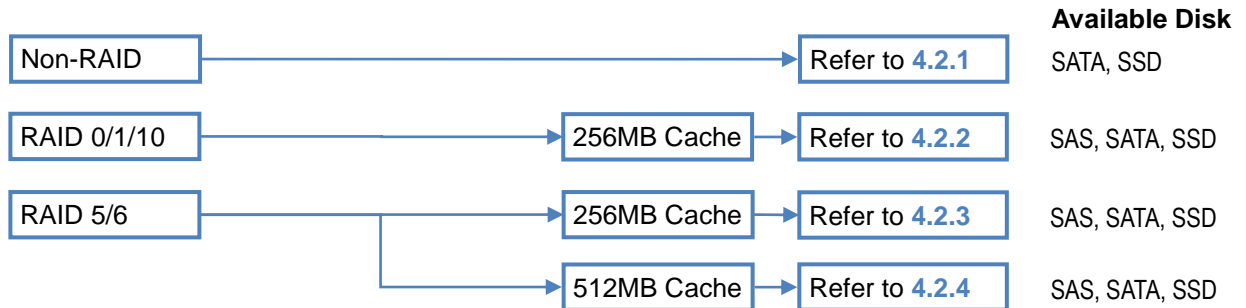
¹ Up to 255 GB of main memory is available to each virtual machine.

4 Internal Hard Disk Drives

4.1 RAID Configuration

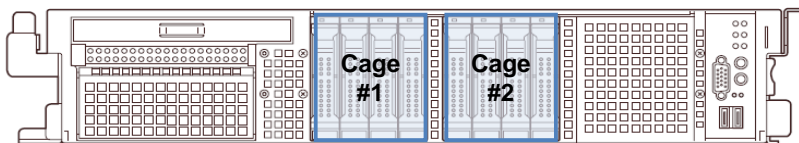
Refer to the section in accordance with your disk form factor and RAID configuration.

4.1.1 Up to eight 2.5-inch Drives

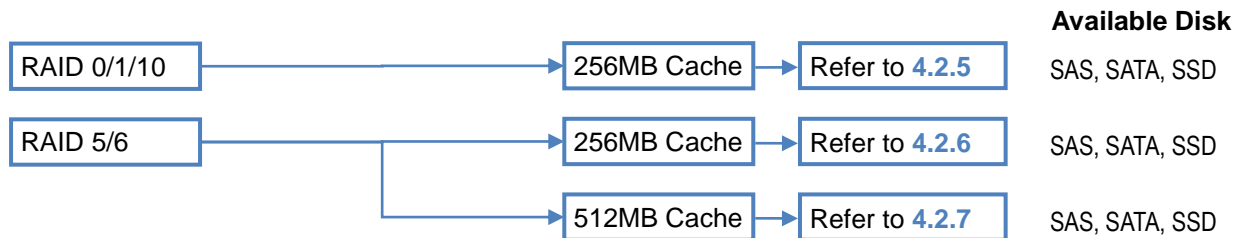


NOTE:

- Up to four hard drives can be installed in the on-board SATA configuration.
- Hot plug insertion/removal are not supported in the on-board SATA configuration.
- An optional RAID controller occupies one PCI slot.
- All hard drives within a RAID array should be of the same capacity and rotation speed.
- SAS and SATA hard drives must be installed in separate HDD Cages.

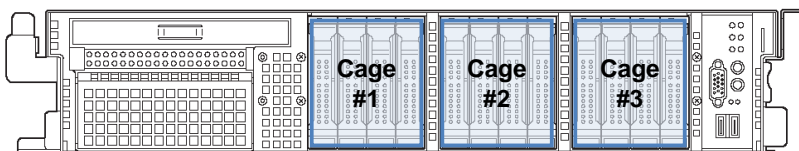


4.1.2 Up to twelve 2.5-inch Drives

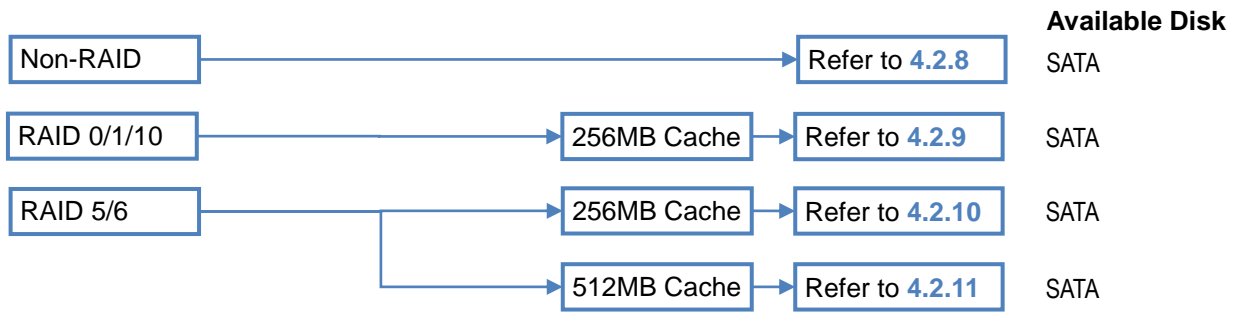


NOTE:

- An optional RAID controller occupies one PCI slot.
- All hard drives within a RAID array should be of the same capacity and rotation speed.
- SAS and SATA hard drives must be installed in separate HDD Cages.



4.1.3 3.5-inch Drives



NOTE:

- Up to four hard drives can be installed in the configuration.
- Hot plug insertion/removal are not supported in the on-board SATA configuration.
- An optional RAID controller occupies one PCI slot.
- All hard drives within a RAID array should be of the same capacity and rotation speed.

4.2 Internal Drive Configuration

4.2.1 2.5-inch Drives with On-board SATA Controller

Category	Product Name / Description	Part Number
Storage Controller	On-board SATA Controller 4 x SATA ports	(Standard)
Cable	Internal SATA Cable 1 x mini-SAS to 1 x mini-SAS	(Standard)
HDD Cage	2.5-inch HDD Cage 8 x 2.5-inch Hot-plug hard drive bays	(Standard)
HDD 4 slots available	SATA 160GB HDD 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-276
	500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-277
	1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-334
	SSD 50GB SSD 1 x 50 GB, 2.5-inch, SATA2	N8150-702
	100GB SSD 1 x 100 GB, 2.5-inch, SATA2	N8150-707

NOTE:

- Up to four hard drives can be installed in the configuration.
- Hot plug insertion/removal are not supported in the configuration.

4.2.2 Up to eight 2.5-inch Drives with RAID 0/1 Controller with 256 MB Cache

Category	Product Name / Description	Part Number	
Storage Controller Required	RAID Controller (256MB, RAID 0/1) LSI MegaRAID SAS 9264-8i RAID 0/1, 256MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-129	
RAID BBU Recommended	RAID Battery Backup Unit for LSI MegaRAID SAS 9264	N8103-123	
Cable	Internal SAS/SATA Cable 1 x mini-SAS to 1 x mini-SAS, 2 sets	(Standard)	
HDD Cage	2.5-inch HDD Cage 8 x 2.5-inch hot plug hard drive bays	(Standard)	
HDD 8 slots available	SAS		
		146.5GB HDD 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-374
		300GB HDD 1 x 300 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-375
		450GB HDD 1 x 450 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-376
		600GB HDD 1 x 600 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-377
		900GB HDD 1 x 900 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-332
		73.2GB HDD 1 x 73.2 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-378
		146.5GB HDD 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-379
		300GB HDD 1 x 300GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-331
		SATA	
		160GB HDD 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-276
		500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-277
		1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-334
		SSD	
	50GB SSD 1 x 50 GB, 2.5-inch, SATA2	N8150-702	
	100GB SSD 1 x 100 GB, 2.5-inch, SATA2	N8150-707	

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.
- SAS and SATA hard drives must be installed in separate HDD Cages.

4.2.3 Up to eight 2.5-inch Drives with RAID 5/6 Controller with 256 MB Cache

Category	Product Name / Description	Part Number		
Storage Controller Required	RAID Controller (256MB, RAID 0/1/5/6) LSI MegaRAID SAS 9264-8i RAID 0/1/5/6/10/50, 256MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-130		
RAID BBU Recommended	RAID Battery Backup Unit for LSI MegaRAID SAS 9264	N8103-123		
Cable	Internal SAS/SATA Cable 1 x mini-SAS to 1 x mini-SAS, 2 sets	(Standard)		
HDD Cage	2.5-inch HDD Cage 8 x 2.5-inch hot plug hard drive bays	(Standard)		
HDD 8 slots available	SAS	146.5GB HDD 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-374	
		300GB HDD 1 x 300 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-375	
		450GB HDD 1 x 450 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-376	
		600GB HDD 1 x 600 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-377	
		900GB HDD 1 x 900 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-332	
		73.2GB HDD 1 x 73.2 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-378	
		146.5GB HDD 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-379	
		300GB HDD 1 x 300GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-331	
		SATA	160GB HDD 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-276
			500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-277
			1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-334
		SSD	50GB SSD 1 x 50 GB, 2.5-inch, SATA2	N8150-702
			100GB SSD 1 x 100 GB, 2.5-inch, SATA2	N8150-707

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.
- SAS and SATA hard drives must be installed in separate HDD Cages.

4.2.4 Up to eight 2.5-inch Drives with RAID 5/6 Controller with 512 MB Cache

Category	Product Name / Description	Part Number
Storage Controller Required	RAID Controller (512MB, RAID0/1/5/6) Promise SuperTrak EX8760T-512 RAID 0/1/5/6/10/50, 512MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-134
RAID BBU Recommended	RAID Battery Backup Unit for Promise SuperTrak EX8760T and EX8768	N8103-140
Cable	Internal SAS/SATA Cable 1 x mini-SAS to 1 x mini-SAS, 2 sets	(Standard)
HDD Cage	2.5-inch HDD Cage 8 x 2.5-inch hot plug hard drive bays	(Standard)
HDD 8 slots available	SAS	
	146.5GB HDD	N8150-374
	1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	
	300GB HDD	N8150-375
	1 x 300 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	
	450GB HDD	N8150-376
	1 x 450 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	
	600GB HDD	N8150-377
	1 x 600 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	
	900GB HDD	N8150-332
	1 x 900 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	
	73.2GB HDD	N8150-378
	1 x 73.2 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	
	146.5GB HDD	N8150-379
1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm		
300GB HDD	N8150-331	
1 x 300GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm		
SATA		
160GB HDD	N8150-276	
1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm		
500GB HDD	N8150-277	
1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm		
1TB HDD	N8150-334	
1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm		
SSD		
50GB SSD	N8150-702	
1 x 50 GB, 2.5-inch, SATA2		
100GB SSD	N8150-707	
1 x 100 GB, 2.5-inch, SATA2		

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.
- SAS and SATA hard drives must be installed in separate HDD Cages.

4.2.5 Up to twelve 2.5-inch Drives with RAID 0/1 Controller with 256 MB Cache

Category	Product Name / Description	Part Number	
Storage Controller 2 sets required	RAID Controller (256MB, RAID 0/1) LSI MegaRAID SAS 9264-8i RAID 0/1, 256MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-129	
RAID BBU 2 sets recommended	RAID Battery Backup Unit for LSI MegaRAID SAS 9264	N8103-123	
Cable	Internal SAS/SATA Cable 1 x mini-SAS to 1 x mini-SAS, 2 sets	(Standard)	
HDD Cage	2.5-inch HDD Cage 6 x 2.5-inch hot plug hard drive bays	(Standard)	
Optional HDD Cage Required	2.5-Inch HDD Cage 4 x 2.5-inch hot plug hard drive bays Including 1 x mini-SAS to 1 x mini-SAS cable	N8154-35F	
HDD 12 slots available	SAS	146.5GB HDD 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-374
		300GB HDD 1 x 300 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-375
		450GB HDD 1 x 450 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-376
		600GB HDD 1 x 600 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-377
		900GB HDD 1 x 900 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-332
		73.2GB HDD 1 x 73.2 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-378
		146.5GB HDD 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-379
	SATA	300GB HDD 1 x 300GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-331
		160GB HDD 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-276
		500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-277
	SSD	1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-334
		50GB SSD 1 x 50 GB, 2.5-inch, SATA2	N8150-702
		100GB SSD 1 x 100 GB, 2.5-inch, SATA2	N8150-707

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.
- SAS and SATA hard drives must be installed in separate HDD Cages.

4.2.6 Up to twelve 2.5-inch Drives with RAID 5/6 Controller with 256 MB Cache

Category	Product Name / Description	Part Number		
Storage Controller 2 sets required	RAID Controller (256MB, RAID 0/1/5/6) LSI MegaRAID SAS 9264-8i RAID 0/1/5/6/10/50, 256MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-130		
RAID BBU 2 sets recommended	RAID Battery Backup Unit for LSI MegaRAID SAS 9264	N8103-123		
Cable	Internal SAS/SATA Cable 1 x mini-SAS to 1 x mini-SAS, 2 sets	(Standard)		
HDD Cage	2.5-inch HDD Cage 6 x 2.5-inch hot plug hard drive bays	(Standard)		
Optional HDD Cage Required	2.5-Inch HDD Cage 4 x 2.5-inch hot plug hard drive bays Including 1 x mini-SAS to 1 x mini-SAS cable	N8154-35F		
HDD 12 slots available	SAS	146.5GB HDD 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-374	
		300GB HDD 1 x 300 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-375	
		450GB HDD 1 x 450 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-376	
		600GB HDD 1 x 600 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-377	
		900GB HDD 1 x 900 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-332	
		73.2GB HDD 1 x 73.2 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-378	
		146.5GB HDD 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-379	
		300GB HDD 1 x 300GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-331	
		SATA	160GB HDD 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-276
			500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-277
			1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-334
		SSD	50GB SSD 1 x 50 GB, 2.5-inch, SATA2	N8150-702
			100GB SSD 1 x 100 GB, 2.5-inch, SATA2	N8150-707

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.
- SAS and SATA hard drives must be installed in separate HDD Cages.

4.2.7 Up to twelve 2.5-inch Drives with RAID 5/6 Controller with 512 MB Cache

Category	Product Name / Description	Part Number		
Storage Controller 2 sets required	RAID Controller (512MB, RAID0/1/5/6) Promise SuperTrak EX8760T-512 RAID 0/1/5/6/10/50, 512MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-134		
RAID BBU 2 sets recommended	RAID Battery Backup Unit for Promise SuperTrak EX8760T and EX8768	N8103-140		
Cable	Internal SAS/SATA Cable 1 x mini-SAS to 1 x mini-SAS, 2 sets	(Standard)		
HDD Cage	2.5-inch HDD Cage 6 x 2.5-inch hot plug hard drive bays	(Standard)		
Optional HDD Cage Required	2.5-Inch HDD Cage 4 x 2.5-inch hot plug hard drive bays Including 1 x mini-SAS to 1 x mini-SAS cable	N8154-35F		
HDD 12 slots available	SAS	146.5GB HDD 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-374	
		300GB HDD 1 x 300 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-375	
		450GB HDD 1 x 450 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-376	
		600GB HDD 1 x 600 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-377	
		900GB HDD 1 x 900 GB, 2.5-inch, SAS 6Gb/s, 10,000 rpm	N8150-332	
		73.2GB HDD 1 x 73.2 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-378	
		146.5GB HDD 1 x 146.5 GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-379	
		300GB HDD 1 x 300GB, 2.5-inch, SAS 6Gb/s, 15,000 rpm	N8150-331	
		SATA	160GB HDD 1 x 160 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-276
			500GB HDD 1 x 500 GB, 2.5-inch, SATA2, 7,200 rpm	N8150-277
			1TB HDD 1 x 1 TB, 2.5-inch, SATA2, 7,200 rpm	N8150-334
		SSD	50GB SSD 1 x 50 GB, 2.5-inch, SATA2	N8150-702
			100GB SSD 1 x 100 GB, 2.5-inch, SATA2	N8150-707

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.
- SAS and SATA hard drives must be installed in separate HDD Cages.

4.2.8 3.5-inch Drives with On-board SATA Controller

Category	Product Name / Description	Part Number
Storage Controller	On-board SATA Controller 4 x SATA ports	(Standard)
Cable	Internal SAS/SATA Cable 1 x mini-SAS to 1 x mini-SAS	(Standard)
HDD Cage	3.5-inch HDD Cage 6 x 3.5-inch hot plug hard drive bays	(Standard)
HDD 4 slots available	500GB HDD 1 x 500 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-274
	1TB HDD 1 x 1 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-263
	2TB HDD 1 x 2 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-278

NOTE:

- Up to four hard drives can be installed in the configuration.
- Hot plug insertion/removal are not supported in the configuration.

4.2.9 3.5-inch Drives with RAID 0/1 Controller with 256 MB Cache

Category	Product Name / Description	Part Number
Storage Controller Required	RAID Controller (256MB, RAID 0/1) LSI MegaRAID SAS 9264-8i RAID 0/1, 256MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-129
RAID BBU Recommended	RAID Battery Backup Unit for LSI MegaRAID SAS 9264	N8103-123
Cable	Internal SAS/SATA Cable 1 x mini-SAS to 1 x mini-SAS, 2 sets	(Standard)
HDD Cage	3.5-inch HDD Cage 6 x 3.5-inch hot plug hard drive bays	(Standard)
HDD 6 slots available	500GB HDD 1 x 500 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-274
	1TB HDD 1 x 1 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-263
	2TB HDD 1 x 2 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-278

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.

4.2.10 3.5-inch Drives with RAID 5/6 Controller with 256 MB Cache

Category	Product Name / Description	Part Number
Storage Controller Required	RAID Controller (256MB, RAID 0/1/5/6) LSI MegaRAID SAS 9264-8i RAID 0/1/5/6/10/50, 256MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-130
RAID BBU Recommended	RAID Battery Backup Unit for LSI MegaRAID SAS 9264	N8103-123
Cable	Internal SAS/SATA Cable 1 x mini-SAS to 1 x mini-SAS, 2 sets	(Standard)
HDD Cage	3.5-inch HDD Cage 6 x 3.5-inch hot plug hard drive bays	(Standard)
HDD 6 slots available	500GB HDD 1 x 500 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-274
	1TB HDD 1 x 1 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-263
	2TB HDD 1 x 2 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-278

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.

4.2.11 3.5-inch Drives with RAID 5/6 Controller with 512 MB Cache

Category	Product Name / Description	Part Number
Storage Controller Required	RAID Controller (512MB, RAID0/1/5/6) Promise SuperTrak EX8760T-512 RAID 0/1/5/6/1/50, 512MB, Int. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-134
RAID BBU Recommended	RAID Battery Backup Unit for Promise SuperTrak EX8760T and EX8768	N8103-140
Cable	Internal SAS/SATA Cable 1 x mini-SAS to 1 x mini-SAS, 2 sets	(Standard)
HDD Cage	3.5-inch HDD Cage 6 x 3.5-inch hot plug hard drive bays	(Standard)
HDD 6 slots available	500GB HDD 1 x 500 GB, 3.5-inch, SATA2, 7,200 rpm	N8150-274
	1TB HDD 1 x 1 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-263
	2TB HDD 1 x 2 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-278
	3TB HDD 1 x 2 TB, 3.5-inch, SATA2, 7,200 rpm	N8150-337

NOTE:

- All hard drives within a RAID array should be of the same capacity and rotation speed.

5 Optical Drive

Category	Product Name / Description	Part Number
Internal 1 slot available	Internal Slim DVD-ROM drive Slim DVD-ROM drive	N8151-100
	Internal DVD Super Multi Drive Slim DVD Super Multi drive, not including writing software	N8151-104F
External	External DVD-ROM drive Slim DVD-ROM drive, Bus powered, 0.8 A required	N8160-85

NOTE:

- Up to 1 optical drive can be connected.

6 Floppy Drive / Flash FDD

Category	Product Name / Description	Part Number
Internal 1 slot available	Drive Internal USB FDD 2 mode	N8151-92
	Cable Internal USB Cable 1 x USB-FDD cable	K410-193(00)
External	Flash FDD USB flash emulating USB floppy disk, Native capacity 1.44 MB	N8160-86

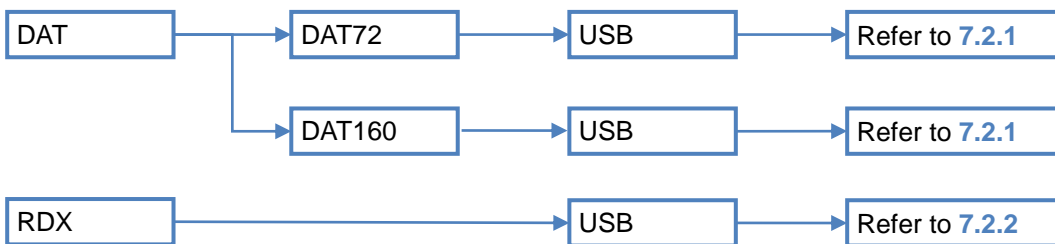
NOTE:

- Up to 1 drive can be connected.

7 Internal Tape / RDX Drives

7.1 Tape / RDX Drive Selection

Refer to the section in accordance with your type of tape drives.



NOTE:

- Tape devices cannot be directly connected to VMware systems. For VMware systems, it is recommended to connect and configure an additional backup server via network.

7.2 Tape / RDX Configuration

7.2.1 DAT / USB

Category	Product Name / Description	Part Number
Controller	Internal USB Controller 1 x USB port	(Standard)
Cable Required	Internal USB cable 1 x Internal USB to 1 x USB device	K410-195(00)
Drive 1 bay available	Internal DAT (USB) DDS3 / DDS4 / DAT72, Native capacity 36 GB NOTE: DDS1 / DDS2 format are not supported	N8151-69
	Internal DAT (USB) DDS4 / DAT72 / DAT160, Native capacity 80 GB NOTE: DDS1 / DDS2 / DDS3 format are not supported	N8151-78

7.2.2 RDX

Category	Product Name / Description	Part Number
Controller	Internal USB Controller 1 x USB port	(Standard)
Cable Required	Internal USB cable 1 x Internal USB to 1 x USB device	K410-195(00)
Drive 1 bay available	Internal RDX (USB)	N8151-86

8 PCI Riser Card / PCI Card

8.1 PCI Riser Card

Product Name / Description	Part Number
Riser Card 3 x PCIe 2.0 x8, 1 x PCIe 2.0 x4, 1 x PCIe x4	(Standard)
Riser Card (PCI-X) 2 x PCIe 2.0 x8, 1 x PCIe 2.0 x4, 1 x PCIe x4, 1 x 64-bit / 133 MHz PCI-X	N8116-21
Riser Card (PCI) 1 x PCIe 2.0 x8, 1 x PCIe 2.0 x4, 1x PCIe x4, 2 x 64-bit / 33 MHz 5V PCI NOTE: The riser card is make-to-order product. Please consult our sales representative in regard to production lead time. The card is not supported on VMware ESXi systems.	N8116-22

8.2 LAN Controller

Category		Product Name / Description	Part Number
GbE	PCIe	1000BASE-T Adapter Intel® PRO/1000 PT Server Adapter PCIe x1, LP / FH, Max. three adapters	N8104-126
		1000BASE-T Adapter (2ch) Intel® PRO/1000 PT Dual Port Server Adapter PCIe x4, FH	N8104-121
		1000BASE-T Adapter (2ch) Intel® PRO/1000 PT Dual Port Server Adapter PCIe x4, LP, Max. two adapters	N8104-122
		1000BASE-T Adapter (4ch) Intel® PRO/1000 PT Quad Port Server Adapter PCIe x4, LP / FH, Max. two adapters	N8104-125A
		NOTE: Network cables with RJ-45 plug covers cannot be used.	
	PCI-X	1000BASE-T Adapter Intel® PRO/1000 MT Server Adapter 64bit / 133 MHz PCI-X, FH	N8104-119
		1000BASE-T Adapter (2ch) Intel® PRO/1000 MT Dual Port Server Adapter 64bit / 133 MHz PCI-X, FH	N8104-120
10GbE	Ctrlr	10GBASE-SR Adapter Chelsio S310E-SR 10GbE Storage Accelerator PCIe x8, LP / FH, Max. two adapters	N8104-123A
		10GBASE Adapter (SFP+/2ch) Broadcom NetXtreme II BCM957711 10G SFP+ Dual Port Network Interface Card PCIe 2.0 x8, LP / FH	N8104-128
		NOTE:	
		- N8104-129 SFP+ Module is required to connect with an optical cable.	
		- Up to 2 SFP+ Modules can be installed.	
		- On Windows Server 2003R2 /2008 / 2008R2 and Red Hat Linux 5.x(EM64T) and 6.x(x86_64) operating systems, teaming and bonding features across one or two identical adapters are supported. A team can include up to two ports and up to two teams per system are allowed.	
		- On Red Hat Linux 5.x(x86) and 6.x(x86) operating systems, bonding features within one adapter with up to two ports are supported. One team per system is allowed.	
	Module	SFP+ Module (10G-SR) 1 x SFP+ Module for N8104-128	N8104-129
Converged Network		Dual Port 10Gb Converged Network Adapter BROCADE 1020 Dual Port 10Gbps Converged Network Adapter PCIe 2.0 x8, LP / FH, 2 x SFP module, Max. two adapters	N8104-131

NOTE:

- Teaming and bonding features across the standard LAN and optional PCIe based GbE LAN controller (excluding N8104-126) are supported on Windows Server 2003R2 /2008 / 2008R2 and Red Hat Linux 5.x and 6.x operating systems.
- When installing a 10GBASE-SR Adapter, no other additional 10GbE LAN controllers is allowed.
- When installing a 1000BASE-SX Adapter, no other additional GbE LAN controllers is allowed.
- Teaming feature is not supported on iSCSI interfaces.

8.3 External RAID Controller

Category	Product Name / Description	Part Number
Controller	RAID Controller (512MB, RAID0/1/5/6) Promise SuperTrak EX8768 RAID 0/1/5/6, 512MB, Ext. 8, PCIe 2.0 x8, SAS 6Gb/s, SATA 3Gb/s, LP / FH	N8103-135
RAID BBU	RAID Battery Backup Unit for Promise SuperTrak EX8760T and EX8768	N8103-140

8.4 Fibre Channel / SAS Controller

Category	Product Name / Description	Part Number
Fibre Channel	Fibre Channel Controller (1ch) Emulex LightPulse LPe1250-F8 Host Bus Adapter 8Gb/s, Optical, PCIe 2.0 x8, LP / FH	N8190-153
	Fibre Channel Controller (2ch) Emulex LightPulse LPe12002-M8 Host Bus Adapter 8Gb/s, Optical, PCIe 2.0 x8, LP / FH	N8190-154
	Fibre Channel Controller (1ch) Emulex LightPulse LPe1150-F4 Host Bus Adapter 4Gb/s, Optical, PCIe x4, LP / FH	N8190-127
	Fibre Channel Controller (2ch) Emulex LightPulse LPe11002-M4 Host Bus Adapter 4Gb/s, Optical, PCIe 2.0 x8, LP / FH	N8190-131
SAS	SAS Controller LSI SAS3442E-R Host Bus Adapter 3Gb/s SAS, Int. 4 / Ext. 4, SFF-8484 / SFF8470, PCIe x8, LP/FH	N8103-104A
	SAS Controller LSI SAS9212-4i4 Host Bus Adapter 6Gb/s SAS, Int. 4 / Ext. 4, 7-pin SATA / SFF-8088, PCIe 2.0 x8, LP/FH	N8103-142

8.5 Serial Port Adapter

Product Name / Description	Part Number
Serial Port Adapter Serial port fixed to PCI bracket	N8117-01A

9 Other Add-in Components

9.1 Redundant Power Supply

Product Name / Description	Part Number
Power Unit 1 x 750 Watt 80 PLUS® Gold certified Hot plug Power Supply	N8181-77F

9.2 Redundant Fan

Product Name / Description	Part Number
Redundant Fan Hot plug redundant cooling fan for R120b-2	N8181-65

9.3 VMware ESXi Pre-install Kit

Product Name / Description	Part Number
VMware ESXi 4.1 Base Kit Including USB flash memory, VMware ESXi 4.1 Recovery CD NOTE: The Base Kit may not be available in some regions. Please contact our sales representative to confirm if it is available in your country. The Base Kit must be ordered with the base model. Installation of VMware ESXi onto hard drives is not supported.	N8106-004F

10 Add-on Components

10.1 17-inch LCD Console Drawer

Category		Product Name / Description	Part Number
Drawer w/ KVM	Drawer	17inch LCD Console Unit (1U/8port) 17-inch LCD, US 83-keys Keyboard, Optical mouse, 8 port KVM switch, 1U height	N8143-69F
	Cable	Switch Unit Connection Cable Set (USB, 1.8m) 1.8 m, 1 x 15-pin mini D-sub to 1 x 15-pin mini D-sub / 1 x 4-pin USB A	K410-118(1A)
		Switch Unit Connection Cable Set (USB, 3m) 3 m, 1 x 15-pin mini D-sub to 1 x 15-pin mini D-sub / 1 x 4-pin USB A	K410-118(03)
		Switch Unit Connection Cable Set (USB, 5m) 5 m, 1 x 15-pin mini D-sub to 1 x 15-pin mini D-sub / 1 x 4-pin USB A	K410-118(05)
		Switch Unit Connection Cable Set (PS/2, 1.8m) 1.8 m, 1 x 15-pin mini D-sub to 1 x 15-pin mini D-sub / 2 x 6-pin mini DIN	K410-119(1A)
		Switch Unit Connection Cable Set (PS/2, 3m) 3 m, 1 x 15-pin mini D-sub to 1 x 15-pin mini D-sub / 2 x 6-pin mini DIN	K410-119(03)
		Switch Unit Connection Cable Set (PS/2, 5m) 5 m, 1 x 15-pin mini D-sub to 1 x 15-pin mini D-sub / 2 x 6-pin mini DIN	K410-119(05)
Drawer w/o KVM	Drawer	17inch LCD Console Unit 1U 17-inch LCD, US 83-keys Keyboard, Optical mouse, 1U height, 4-pin USB B to 4-pin USB A cable 2m, PS/2 Y-splitter cable 2m, 15-pin mini D-sub VGA cable 2m	N8143-76F

10.2 KVM Switch

Category	Product Name / Description	Part Number
KVM Switch	Server Switch Unit (8 server) 1U USB 8 port KVM switch	N8191-10F
Cable	Switch Unit Connection Cable Set (USB,1.8m) 1.8 m, 1 x 15-pin mini D-sub to 1 x 15-pin mini D-sub / 1 x 4-pin USB A	K410-118(1A)
	Switch Unit Connection Cable Set (USB,3m) 3 m, 1 x 15-pin mini D-sub to 1 x 15-pin mini D-sub / 1 x 4-pin USB A	K410-118(03)
	Switch Unit Connection Cable Set (USB,3m) 5 m, 1 x 15-pin mini D-sub to 1 x 15-pin mini D-sub / 1 x 4-pin USB A	K410-118(05)
	Switch Unit Connection Cable Set (PS/2, 1.8m) 1.8 m, 1 x 15-pin mini D-sub to 1 x 15-pin mini D-sub / 2 x 6-pin mini DIN	K410-119(1A)
	Switch Unit Connection Cable Set (PS/2, 3m) 3 m, 1 x 15-pin mini D-sub to 1 x 15-pin mini D-sub / 2 x 6-pin mini DIN	K410-119(03)
	Switch Unit Connection Cable Set (PS/2, 5m) 5 m, 1 x 15-pin mini D-sub to 1 x 15-pin mini D-sub / 2 x 6-pin mini DIN	K410-119(05)

10.3 Server Management License

The server integrates the EXPRESSSCOPE Engine 2 as standard. Refer to [Server Management](#) for the standard management features. For more extensive remote KVM and remote media features, choose the following kit.

Product Name / Description	Part Number
Remote KVM and Media License Kit License for one server. Remote KVM and remote media are enabled regardless of OS status. Remote KVM: <ul style="list-style-type: none"> - Displays a graphics console on the web browser of the remote terminal (PC/server). - Controls keyboard and mouse via the remote terminals' web browser Remote media: Enables the user to use the CD / DVD / FD / Flash memory of the remote terminals (PC/server) as if accessing the local drives. NOTE: Remote KVM and remote media features are not available for virtual machines.	N8115-03

10.4 Front Bezel

Product Name / Description	Part Number
Front Bezel Front bezel for R120b-2	N8146-17F

10.5 Cable Management Arm

Product Name / Description	Part Number
Cable Management Arm For R120b-2 / R120b-1	N8143-70

10.6 Medium and Cartridge

Category	Product Name	Drive supported	Part Number
RDX	RDX Cartridge (320GB)	N8151-86	N8152-26
	RDX Cartridge (500GB)	N8151-86	N8152-27
	RDX Cartridge (1TB)	N8151-86	N8152-33
DAT	DAT72(36GB) Medium 5 pack	N8151-69	N8152-08

11 Support Service

11.1 Software

Product Name / Description	Part Number
PP Support Pack (VMware ESXi 4.1 for 1 processor)(1year) Technical Support Service regarding ESXi (for quick solutions to technical issues) NOTE: It is necessary to purchase a PP support pack for each processor installed in the system.	ULH1S-SV40-008F

References

Server Management

The EXPRESSSCOPE Engine 2, integrated into the server, provides superior remote control and system management features listed in the table below.

		Standard	With Remote KVM and Media License kit
Hardware monitoring	Temperature/voltage/power/fan /degeneration (memory/hard drive)	✓	✓
	Hardware event log collection	✓	✓
Boot monitoring	Booting, BIOS/POST stall, OS stall, shutdown	✓ ¹	✓ ¹
Alerting	HW error, Boot error and OS panic (by SNMP, E-Mail)	✓	✓
Remote KVM (via LAN)	POST/BIOS setup, DOS utility	✓ ²	✓
	Panic screen, Boot screen	✓ ²	✓
	Text-based screen (OS console)	✓ ²	✓
	GUI-based screen (OS console)	-	✓
Remote control (via LAN)	Remote reset/power on-off/ dump	✓	✓
	OS shutdown	✓ ¹	✓ ¹
	Remote media (CD/DVD/FD)	-	✓
	Server Management Command Line Protocol (DMTF compliant)	✓	✓
	Remote control via Web browser (without dedicated app)	✓	✓
	Remote batch	✓ ¹	✓ ¹
	Scheduling (without UPS)	✓	✓
Others	Set automatic IP address via DNS/DHCP	✓	✓
Remote wakeup	Wake On LAN, Wake On Ring	✓	✓
Centralized management	Monitoring and control of multiple servers	✓ ¹	✓ ¹
Industry standard	IPMI	2.0	2.0

¹ The feature is not supported on VMware ESXi systems.

² The standard serial port is not available for the feature.

OS Support Matrix for PCI Cards

Part number	Product Name	WS 2008R2	WS 2008	WS 2008 x64	WS 2003R2	WS 2003R2 x64	WS 2003	RHEL 6	RHEL 6 x64	RHEL 5	RHEL 5 x64	RHEL 4	RHEL 4 x64	SLES 10	SLES 10 x64	ESXi 4.1
N8103-129	RAID Controller	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N8103-130	RAID Controller	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N8103-134	RAID Controller	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	-	✓
N8103-135	RAID Controller	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓
N8103-104A	SAS Controller, 3 Gb/s	✓	✓	✓	✓	✓	✓	-	-	✓	✓	✓	✓	✓	✓	-
N8103-142	SAS Controller, 6 Gb/s	✓	✓	✓	✓	✓	✓	-	-	✓	✓	-	-	-	-	-
N8190-153	Fibre Channel Controller	✓	✓	✓	✓	✓	✓	-	-	✓	✓	-	-	-	-	✓
N8190-154	Fibre Channel Controller (2ch)	✓	✓	✓	✓	✓	✓	-	-	✓	✓	-	-	-	-	✓
N8190-127	Fibre Channel Controller	✓	✓	✓	✓	✓	✓	-	-	✓	✓	✓	✓	✓	✓	✓
N8190-131	Fibre Channel Controller (2ch)	✓	✓	✓	✓	✓	✓	-	-	✓	✓	✓	✓	✓	✓	✓
N8104-126	1000BASE-T Adapter	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N8104-121	1000BASE-T Adapter (2ch)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N8104-122	1000BASE-T Adapter (2ch)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N8104-125A	1000BASE-T Adapter (4ch)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓
N8104-123A	10GBASE-SR Adapter	-	-	-	✓	✓	✓	-	-	-	-	-	-	-	-	-
N8104-128	10GBASE Adapter (SFP+/2ch)	✓	✓	✓	-	-	-	✓	✓	✓	✓	✓	✓	-	-	✓
N8104-119	1000BASE-T Adapter	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓
N8104-120	1000BASE-T Adapter (2ch)	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓
N8104-112	1000BASE-SX Adapter	-	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-
N8104-131	Dual Port 10Gb Converged Network Adapter	✓	✓	✓	-	-	-	-	-	✓	✓	-	-	-	-	-

Supporting PCI Cards and Installable Slots

Standard Riser Card

Part Number	Product Name	Slots						Remarks
		Slot # :	#0A	#2B	#3B	#1C	#2C	
	PCI Slot:	x4	x8	x8	x8	x4	x4	
	Card height:	-	FH	FH	LP	LP	LP	
	Slot type:	x8	x16	x8	x8	x8	x8	
	Installable card length (mm) :	-	312	312	167	167	167	
N8103-129	RAID Controller (256MB, RAID 0/1) [PCIe 2.0 x8]	✓	✓	-	-	-	-	
N8103-130	RAID Controller (256MB, RAID 0/1/5/6) [PCIe 2.0 x8]	✓	✓	-	-	-	-	
N8103-134	RAID Controller (512MB,RAID 0/1/5/6) [PCIe 2.0 x8]	✓	✓	-	-	-	-	
N8103-135	RAID Controller (512MB,RAID 0/1/5/6) [PCIe 2.0 x8]	-	✓	✓	✓	✓	-	Max. 2
N8103-104A	SAS Controller [PCIe x8]	-	✓	✓	✓	✓	-	Max. 3
N8103-142	SAS Controller [PCIe 2.0 x8]	-	✓	✓	✓	✓	-	Max. 3
N8190-127	Fibre Channel Controller [PCIe x4]	-	✓	✓	✓	✓	✓	
N8190-131	Fibre Channel Controller (2ch) [PCIe x4]	-	✓	✓	✓	✓	✓	
N8190-153	Fibre Channel Controller [PCIe 2.0 x8]	-	✓	✓	✓	✓	✓	
N8190-154	Fibre Channel Controller (2ch) [PCIe 2.0 x8]	-	✓	✓	✓	-	-	
N8104-126	1000BASE-T adapter [PCIe x1]	-	✓	✓	✓	✓	✓	Max. 3
N8104-121	1000BASE-T Adapter (2ch) [PCIe x4]	-	✓	✓	-	-	-	
N8104-122	1000BASE-T Adapter (2ch) [PCIe x4]	-	-	-	✓	✓	✓	Max. 2
N8104-125A	1000BASE-T Adapter (4ch) [PCIe x4]	-	✓	✓	✓	✓	-	Max. 2
N8104-123A	10GBASE-SR Adapter [PCIe x8]	-	✓	✓	✓	✓	-	Max. 2
N8104-128	10GBASE adapter (SFP+/2ch) [PCIe 2.0 x8]	-	✓	✓	✓	-	-	Max. 2
N8104-131	Dual Port 10Gb Converged Network Adapter [PCIe 2.0 x8]	-	✓	✓	✓	-	-	Max. 2
N8117-01A	Serial Port Adapter	-	-	-	✓	✓	✓	Max. 1

N8116-21 Riser Card (PCI-X)

Part Number	Product Name	Slots						Remarks
		#0A	#2B	#3B	#1C	#2C	#3C	
	Slot # :	#0A	#2B	#3B	#1C	#2C	#3C	
	PCI Slot:	x4	x8	64-bit	x8	x4	x4	
	Card height:	-	FH	FH	LP	LP	LP	
	Slot type:	x8	x16	3.3 V	x8	x8	x8	
	Installable card length (mm) :	-	312	312	167	167	167	
N8103-129	RAID Controller (256MB, RAID 0/1) [PCIe 2.0 x8]	✓	✓	-	-	-	-	
N8103-130	RAID Controller (256MB, RAID 0/1/5/6) [PCIe 2.0 x8]	✓	✓	-	-	-	-	
N8103-134	RAID Controller (512MB,RAID 0/1/5/6) [PCIe 2.0 x8]	✓	✓	-	-	-	-	
N8103-135	RAID Controller (512MB,RAID 0/1/5/6) [PCIe 2.0 x8]	-	✓	-	✓	✓	-	Max. 2
N8103-104A	SAS Controller [PCIe x8]	-	✓	-	✓	✓	-	
N8103-142	SAS Controller [PCIe 2.0 x8]	-	✓	-	✓	✓	-	
N8190-127	Fibre Channel Controller [PCIe x4]	-	✓	-	✓	✓	✓	
N8190-131	Fibre Channel Controller (2ch) [PCIe x4]	-	✓	-	✓	✓	✓	
N8190-153	Fibre Channel Controller [PCIe2.0 x8]	-	✓	-	✓	✓	✓	
N8190-154	Fibre Channel Controller(2ch) [PCIe2.0 x8]	-	✓	-	✓	-	-	
N8104-119	100BASE-T Adapter [64-bit / 133 MHz PCI-X]	-	-	✓	-	-	-	
N8104-120	100BASE-T Adapter(2ch) [64-bit / 133 MHz PCI-X]	-	-	✓	-	-	-	
N8104-126	1000BASE-T Adapter [PCIe x1]	-	✓	-	✓	✓	✓	Max. 3
N8104-121	1000BASE-T Adapter(2ch) [PCIe x4]	-	✓	-	-	-	-	
N8104-122	1000BASE-T Adapter(2ch) [PCIe x4]	-	-	-	✓	✓	✓	Max. 2
N8104-125A	1000BASE-T Adapter(4ch) [PCIe x4]	-	✓	-	✓	✓	-	Max. 2
N8104-112	1000BASE-SX adapter [64-bit / 133 MHz PCI-X]	-	-	✓	-	-	-	
N8104-123A	10GBASE-SR adapter [PCIe x8]	-	✓	-	✓	✓	-	Max. 2
N8104-128	10GBASE adapter (SFP+/2ch) [PCIe2.0 x8]	-	✓	-	✓	-	-	
N8104-131	Dual Port 10Gb Converged Network Adapter [PCIe 2.0 x8]	-	✓	-	✓	-	-	
N8117-01A	Serial Port Adapter	-	-	-	✓	✓	✓	Max. 1

N8116-22 Riser Card (PCI)

Part Number	Product Name	Slots						Remarks
		#0A	#2B	#3B	#1C	#2C	#3C	
	Slot # :	#0A	#2B	#3B	#1C	#2C	#3C	
	PCI Slot:	x4	64-bit	64-bit	x8	x4	x4	
	Card height:	-	FH	FH	LP	LP	LP	
	Slot type:	x8	5 V	5 V	x8	x8	x8	
	Installable card length (mm) :	-	312	312	167	167	167	
N8103-129	RAID Controller (256MB, RAID 0/1) [PCIe 2.0 x8]	✓	-	-	✓	-	-	
N8103-130	RAID Controller (256MB, RAID 0/1/5/6) [PCIe 2.0 x8]	✓	-	-	✓	-	-	
N8103-134	RAID Controller (512MB,RAID 0/1/5/6) [PCIe 2.0 x8]	✓	-	-	✓	-	-	
N8103-135	RAID Controller (512MB,RAID 0/1/5/6) [PCIe 2.0 x8]	-	-	-	✓	✓	-	
N8103-104A	SAS Controller [PCIe x8]	-	-	-	✓	✓	-	
N8103-142	SAS Controller [PCIe 2.0 x8]	-	-	-	✓	✓	-	
N8190-127	Fibre Channel Controller [PCIe x4]	-	-	-	✓	✓	✓	
N8190-131	Fibre Channel Controller (2ch) [PCIe x4]	-	-	-	✓	✓	✓	
N8190-153	Fibre Channel Controller [PCIe 2.0 x8]	-	-	-	✓	✓	✓	
N8190-154	Fibre Channel Controller(2ch) [PCIe 2.0 x8]	-	-	-	✓	-	-	
N8104-119	100BASE-T Adapter [64-bit / 133 MHz PCI-X]	-	✓	✓	-	-	-	
N8104-120	100BASE-T Adapter(2ch) [64-bit / 133 MHz PCI-X]	-	✓	✓	-	-	-	
N8104-126	1000BASE-T Adapter [PCIe x1]	-	-	-	✓	✓	✓	
N8104-122	1000BASE-T Adapter(2ch) [PCIe x4]	-	-	-	✓	✓	✓	Max. 2
N8104-125A	1000BASE-T Adapter(4ch) [PCIe x4]	-	-	-	✓	✓	-	
N8104-112	1000BASE-SX adapter [64-bit / 133 MHz PCI-X]	-	✓	✓	-	-	-	
N8104-123A	10GBASE-SR adapter [PCIe x8]	-	-	-	✓	✓	-	
N8104-128	10GBASE adapter (SFP+/2ch) [PCIe 2.0 x8]	-	-	-	✓	-	-	
N8104-131	Dual Port 10Gb Converged Network Adapter [PCIe 2.0 x8]	-	-	-	✓	-	-	
N8117-01A	Serial Port Adapter	-	-	-	✓	✓	✓	Max. 1

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For hard drive capacity measurements, 1 GB = 1 billion bytes. Actual formatted capacity is less.

Revision History

Revision	Date	Description
6.3	February 13, 2012	<p>Discontinued products removed: 250GB 3.5-inch SATA HDD / N8150-209A 160GB RDX Cartridge / N8152-20 640GB RDX Cartridge / N8152-30</p> <p>Part number changed: 146.5GB 2.5-inch SAS HDD / N8150-374 300GB 2.5-inch SAS HDD / N8150-375 450GB 2.5-inch SAS HDD / N8150-376 600GB 2.5-inch SAS HDD / N8150-377</p>
6.2	January 23, 2012	<p>New products added: 4GB Memory Kit / N8102-429F</p> <p>Discontinued products removed: 4GB Memory Kit / N8102-373F</p> <p>Part number changed: 73.2GB 2.5-inch SAS HDD / N8150-378 146.5GB 2.5-inch SAS HDD / N8150-379</p>
6.1	January 11, 2012	<p>Discontinued products removed: SCSI Controller / N8103-107 100BASE-SX Adapter / N8104-112</p> <p>Discontinued products removed: Base model with E5503 / N8100-1706F</p> <p>Others: Correct incorrect information in internal drive configuration using 3TB 3.5-inch SATA drive</p>
6.0	December 14, 2011	<p>New products added: 3TB 3.5-inch SATA HDD / N8150-337 2GB Memory Kit / N8102-428F</p> <p>Discontinued products removed: 1GB Memory Kit / N8102-371F 2GB Memory Kit / N8102-372F 2GB Memory Kit / N8102-387</p>
5.2	September 15, 2011	<p>Others: Correct incorrect part numbers for 50 GB SSD, PS/2 Switch Unit Connection Cable Set. Correct incorrect information in Specification, 10.1 17-inch LCD Console Drawer, OS Support Matrix for PCI Cards, and Supporting PCI Cards and Installable Slots.</p>
5.1	August 24, 2011	<p>Others: Add section for Medium and Cartridge</p>
5.0	July 29, 2011	<p>New products added: 300GB 15K 2.5-inch SAS HDD / N8150-331 900GB 10K 2.5-inch SAS HDD / N8150-332</p> <p>Discontinued products removed: SCSI Controller / N8103-75 100BASE-TX Adapter / N8104-111</p>
4.0	June 6, 2011	<p>New product added: Internal DVD Super Multi Drive / N8151-104F</p>
3.0	April 8, 2011	<p>New products added: 1TB 7.2K 2.5-inch SATA HDD / N8150-334</p>
2.0	February 16, 2011	<p>Others: 50GB SSD been re-added</p>
1.0	February 14, 2011	Initial release